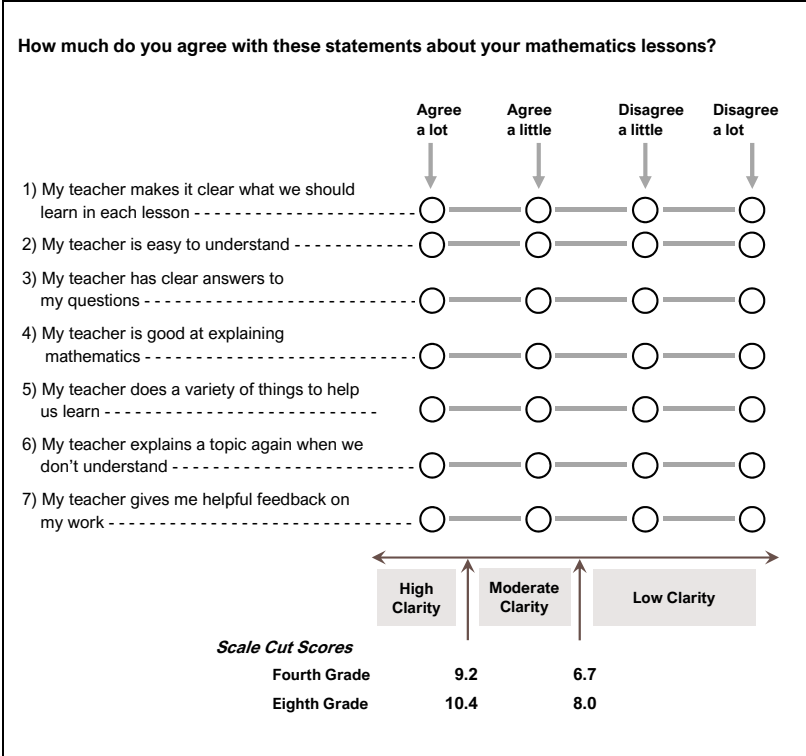


Exhibit 5.2.1: Instructional Clarity in Mathematics Lessons

About the Scale

Students were scored according to their responses to seven statements on the *Instructional Clarity in Mathematics Lessons* scale. Cut scores divide the scale into three categories. Students who reported **High Clarity of Instruction** in their mathematics lessons had a score at or above the cut score corresponding to “agreeing a lot” with four of the seven statements and “agreeing a little” with the other three, on average. Students who reported **Low Clarity of Instruction** in their mathematics lessons had a score at or below the cut score corresponding to “disagreeing a little” with four of the seven statements and “agreeing a little” with the other three, on average. All other students reported **Moderate Clarity of Instruction** in their mathematics lessons.



SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2023  
Downloaded from <https://timss2023.org/results>

## Exhibit 5.2.2: Instructional Clarity in Mathematics Lessons

Country	High Clarity of Instruction		Moderate Clarity of Instruction		Low Clarity of Instruction		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Albania	91 (0.8)	518 (5.1)	7 (0.7)	479 (8.5)	1 ~	~ ~	11.2 (0.05)
Armenia	87 (0.8)	522 (2.5)	12 (0.7)	492 (5.8)	2 ~	~ ~	11.1 (0.04)
Australia	68 (1.2)	533 (2.8)	27 (1.0)	525 (4.3)	5 (0.5)	501 (7.6)	9.9 (0.05)
Azerbaijan	81 (0.9)	514 (3.2)	16 (0.7)	464 (5.2)	4 (0.4)	426 (8.4)	10.6 (0.04)
Bahrain	75 (1.1)	476 (4.3)	20 (0.8)	443 (5.1)	5 (0.6)	410 (10.1)	10.3 (0.06)
Belgium (Flemish)	71 (1.1)	526 (2.1)	26 (1.0)	516 (3.3)	3 (0.3)	505 (9.3)	10.1 (0.05)
Belgium (French)	63 (1.1)	494 (2.5)	32 (1.0)	488 (3.1)	5 (0.5)	471 (7.1)	9.7 (0.05)
Bosnia & Herzegovina	68 (1.3)	459 (3.3)	29 (1.4)	447 (4.9)	3 (0.4)	425 (10.9)	10.2 (0.05)
Brazil	67 (0.8)	421 (3.9)	28 (0.7)	401 (4.9)	5 (0.3)	347 (7.0)	9.8 (0.03)
Bulgaria	83 (1.2)	531 (4.0)	15 (0.9)	529 (6.9)	2 ~	~ ~	10.7 (0.06)
Canada	72 (0.8)	513 (2.1)	25 (0.7)	496 (2.7)	4 (0.3)	472 (6.4)	10.1 (0.03)
Chile	67 (1.1)	453 (2.8)	28 (1.0)	439 (3.8)	5 (0.4)	406 (8.7)	10.0 (0.05)
Chinese Taipei	60 (1.2)	612 (1.9)	32 (0.9)	607 (2.3)	8 (0.7)	581 (4.5)	9.6 (0.06)
Cyprus	76 (1.0)	522 (2.7)	20 (0.9)	510 (3.6)	4 (0.4)	488 (7.3)	10.3 (0.05)
Czech Republic	62 (1.2)	534 (2.5)	32 (1.0)	532 (2.7)	6 (0.5)	505 (6.3)	9.7 (0.05)
Denmark	51 (1.7)	536 (2.9)	39 (1.2)	517 (2.7)	11 (0.8)	501 (4.9)	9.1 (0.07)
England	69 (1.1)	560 (3.5)	26 (0.8)	551 (4.2)	5 (0.5)	511 (7.9)	10.0 (0.05)
Finland	65 (1.1)	536 (2.4)	30 (1.1)	528 (3.3)	5 (0.4)	501 (6.8)	9.8 (0.04)
France	55 (1.2)	488 (2.9)	39 (1.0)	487 (3.8)	6 (0.5)	458 (7.0)	9.4 (0.05)
Georgia	84 (1.0)	508 (2.9)	14 (0.9)	472 (5.6)	1 ~	~ ~	11.0 (0.05)
Germany	61 (1.1)	533 (2.3)	32 (0.9)	521 (3.3)	7 (0.5)	493 (4.9)	9.6 (0.05)
Hong Kong SAR	61 (1.1)	607 (4.3)	31 (0.8)	583 (4.7)	8 (0.6)	558 (7.4)	9.7 (0.05)
Hungary	65 (1.2)	532 (3.7)	29 (0.9)	511 (4.7)	6 (0.6)	498 (7.7)	9.8 (0.06)
Iran, Islamic Rep. of	86 (0.8)	430 (3.8)	12 (0.8)	385 (9.3)	3 (0.2)	356 (11.2)	10.9 (0.04)
Ireland	69 (1.3)	546 (3.1)	27 (1.1)	548 (3.9)	4 (0.5)	538 (8.3)	10.0 (0.05)
Italy	63 (1.2)	523 (3.1)	32 (1.1)	502 (4.2)	5 (0.5)	498 (7.5)	9.7 (0.05)
Japan	49 (1.7)	595 (2.2)	44 (1.3)	590 (3.1)	7 (0.9)	586 (6.2)	9.3 (0.08)
Jordan	76 (1.6)	441 (5.8)	17 (1.2)	404 (6.8)	7 (0.6)	382 (11.6)	10.5 (0.08)
Kazakhstan	61 (1.2)	500 (3.7)	36 (1.1)	480 (4.0)	4 (0.3)	439 (8.4)	9.6 (0.05)
Korea, Rep. of	74 (1.0)	601 (2.7)	23 (0.9)	579 (3.7)	3 (0.4)	568 (10.8)	10.2 (0.05)
Kosovo	87 (1.0)	462 (3.3)	11 (0.7)	417 (6.0)	2 ~	~ ~	11.1 (0.05)
Kuwait	70 (1.2)	404 (4.6)	25 (1.0)	371 (6.1)	5 (0.4)	328 (9.4)	10.1 (0.06)
Latvia	47 (1.3)	534 (3.2)	43 (1.1)	538 (3.2)	10 (0.7)	529 (5.5)	9.0 (0.05)
Lithuania	63 (1.2)	570 (2.9)	31 (0.9)	554 (3.5)	6 (0.5)	535 (7.9)	9.7 (0.05)
Macao SAR	55 (0.7)	595 (1.6)	36 (0.6)	572 (1.8)	9 (0.3)	545 (4.0)	9.4 (0.02)
Montenegro	74 (0.8)	490 (2.0)	22 (0.7)	458 (3.5)	4 (0.4)	437 (8.1)	10.3 (0.04)
Morocco	84 (1.1)	404 (5.0)	14 (1.0)	345 (6.1)	2 ~	~ ~	10.8 (0.06)
Netherlands	71 (1.1)	543 (2.1)	26 (1.0)	529 (3.4)	3 (0.4)	502 (9.2)	10.0 (0.05)
New Zealand	61 (1.0)	496 (2.8)	33 (0.9)	494 (3.4)	6 (0.5)	477 (6.4)	9.6 (0.05)
North Macedonia	85 (0.8)	488 (3.4)	13 (0.7)	447 (5.9)	3 (0.3)	425 (10.7)	10.9 (0.04)
Norway (5)	59 (1.2)	535 (2.6)	36 (1.2)	531 (2.3)	5 (0.5)	509 (6.0)	9.5 (0.05)
Oman	64 (0.9)	441 (4.7)	29 (0.8)	405 (4.1)	7 (0.4)	376 (6.6)	9.7 (0.04)
Poland	44 (1.1)	555 (2.8)	44 (0.9)	546 (2.4)	12 (0.7)	524 (3.8)	8.8 (0.05)
Portugal	77 (1.0)	524 (3.0)	21 (1.0)	504 (3.8)	2 ~	~ ~	10.3 (0.04)
Qatar	72 (0.8)	480 (3.6)	22 (0.6)	448 (4.1)	7 (0.5)	412 (7.2)	10.2 (0.04)
Romania	86 (0.9)	552 (4.3)	12 (0.7)	531 (8.7)	3 (0.6)	517 (20.6)	10.9 (0.05)
Saudi Arabia	72 (0.9)	442 (4.3)	21 (0.7)	406 (5.3)	7 (0.5)	380 (8.2)	10.2 (0.05)
Serbia	81 (1.0)	530 (3.1)	16 (0.9)	507 (4.8)	3 (0.3)	490 (10.4)	10.6 (0.05)
Singapore	62 (1.0)	624 (2.9)	31 (0.8)	606 (3.7)	7 (0.4)	577 (6.0)	9.7 (0.04)
Slovak Republic	69 (1.4)	514 (3.7)	27 (1.1)	524 (3.6)	4 (0.5)	508 (7.3)	10.0 (0.06)
Slovenia	61 (1.0)	520 (2.1)	34 (0.9)	515 (2.5)	5 (0.4)	477 (6.2)	9.6 (0.04)
South Africa (5)	66 (1.3)	378 (4.3)	28 (1.0)	336 (4.7)	6 (0.5)	312 (8.8)	9.8 (0.06)
Spain	77 (0.8)	504 (2.1)	19 (0.7)	487 (3.4)	4 (0.3)	475 (7.2)	10.3 (0.04)
Sweden	59 (1.5)	535 (3.2)	36 (1.3)	531 (2.8)	5 (0.5)	497 (8.5)	9.6 (0.05)
Türkiye (5)	76 (1.1)	562 (3.8)	20 (0.9)	529 (6.6)	4 (0.4)	514 (10.7)	10.2 (0.05)
United Arab Emirates	74 (0.4)	517 (1.2)	21 (0.3)	470 (2.2)	5 (0.2)	433 (3.6)	10.3 (0.02)
United States	68 (0.8)	532 (3.1)	26 (0.7)	506 (3.8)	6 (0.3)	469 (5.4)	9.9 (0.04)
Uzbekistan	81 (1.0)	457 (3.2)	15 (0.9)	403 (3.9)	4 (0.4)	382 (7.7)	10.8 (0.05)
<b>International Average</b>	<b>69 (0.1)</b>	<b>513 (0.4)</b>	<b>26 (0.1)</b>	<b>492 (0.6)</b>	<b>5 (0.1)</b>	<b>472 (1.2)</b>	
<b>Benchmarking Participants</b>							
Ontario, Canada	72 (1.3)	512 (3.4)	24 (1.2)	495 (4.3)	4 (0.5)	476 (11.5)	10.1 (0.06)
Quebec, Canada	69 (1.1)	521 (2.6)	28 (0.9)	509 (3.9)	4 (0.4)	482 (8.1)	9.9 (0.05)
Abu Dhabi, UAE	67 (0.7)	484 (2.0)	26 (0.6)	432 (3.0)	7 (0.4)	400 (5.2)	9.9 (0.04)
Dubai, UAE	78 (0.6)	568 (1.6)	18 (0.6)	535 (3.3)	4 (0.3)	503 (6.8)	10.4 (0.03)
Sharjah, UAE	78 (1.1)	518 (3.2)	18 (0.8)	481 (4.3)	4 (0.5)	439 (8.0)	10.5 (0.05)

This TIMSS context questionnaire scale was established in 2023 based on the combined response distribution of countries that participated in TIMSS 2023. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.

An "r" indicates data are available for at least 70% but less than 85% of the students.

A tilde (~) indicates insufficient data to report result.

## Exhibit 5.2.3: Instructional Clarity in Mathematics Lessons

Country	High Clarity of Instruction		Moderate Clarity of Instruction		Low Clarity of Instruction		Average Scale Score
	Percent of Students	Average Achievement	Percent of Students	Average Achievement	Percent of Students	Average Achievement	
Australia	39 (1.5)	529 (4.3)	39 (1.1)	510 (4.0)	22 (1.3)	493 (4.5)	9.6 (0.07)
Austria	32 (1.2)	518 (4.0)	45 (0.9)	514 (2.4)	23 (1.2)	508 (4.6)	9.4 (0.06)
Azerbaijan	67 (1.3)	494 (4.2)	24 (1.0)	472 (5.0)	8 (0.6)	470 (6.9)	10.8 (0.05)
Bahrain	61 (1.3)	444 (2.8)	27 (0.8)	420 (3.4)	12 (0.8)	399 (5.7)	10.5 (0.06)
Brazil	50 (1.5)	392 (3.7)	36 (1.3)	380 (5.0)	14 (0.7)	372 (4.1)	10.1 (0.06)
Chile	46 (1.7)	428 (3.5)	41 (1.2)	414 (3.4)	13 (1.1)	404 (5.3)	10.1 (0.08)
Chinese Taipei	37 (1.3)	622 (3.7)	49 (1.0)	597 (3.3)	14 (0.9)	574 (6.2)	9.8 (0.06)
Cote d'Ivoire	64 (1.8)	265 (3.9)	32 (1.5)	262 (7.8)	4 (0.5)	251 (10.6)	10.6 (0.06)
Cyprus	40 (1.3)	517 (4.5)	37 (0.9)	494 (2.8)	24 (1.0)	477 (3.4)	9.6 (0.06)
Czech Republic	34 (1.3)	523 (2.8)	44 (1.0)	520 (2.8)	22 (1.4)	510 (4.1)	9.4 (0.07)
England	38 (1.7)	547 (5.4)	40 (1.2)	529 (5.2)	21 (1.3)	496 (6.7)	9.6 (0.07)
Finland	36 (1.1)	521 (3.7)	43 (0.9)	508 (2.8)	21 (1.1)	487 (3.4)	9.6 (0.05)
France	26 (1.7)	498 (4.2)	48 (1.1)	484 (3.6)	26 (1.9)	465 (4.5)	9.1 (0.09)
Georgia	65 (1.5)	476 (3.8)	28 (1.1)	463 (3.7)	8 (0.6)	458 (6.9)	10.8 (0.06)
Hong Kong SAR	36 (1.6)	589 (5.4)	47 (1.1)	574 (5.5)	18 (1.2)	557 (8.8)	9.7 (0.08)
Hungary	34 (1.3)	521 (4.5)	43 (1.0)	501 (4.2)	23 (1.2)	497 (4.9)	9.4 (0.06)
Iran, Islamic Rep. of	53 (1.2)	430 (4.2)	32 (0.7)	419 (4.5)	15 (0.9)	413 (4.2)	10.2 (0.05)
Ireland	42 (1.5)	526 (3.6)	37 (1.0)	523 (3.4)	22 (1.0)	516 (5.0)	9.7 (0.07)
Israel	42 (1.3)	497 (5.7)	35 (0.9)	491 (4.2)	23 (1.1)	480 (5.3)	9.7 (0.06)
Italy	39 (1.8)	513 (3.3)	42 (1.2)	498 (3.8)	19 (1.5)	491 (4.7)	9.7 (0.08)
Japan	36 (1.5)	605 (3.3)	53 (1.3)	593 (3.7)	11 (1.0)	575 (6.5)	9.8 (0.06)
Jordan	65 (1.2)	402 (3.5)	26 (1.0)	377 (3.7)	9 (0.6)	378 (6.3)	10.7 (0.05)
Kazakhstan	43 (1.3)	472 (4.8)	50 (1.2)	447 (3.6)	7 (0.6)	422 (6.1)	10.0 (0.05)
Korea, Rep. of	48 (1.4)	611 (3.3)	39 (0.9)	590 (3.7)	12 (1.2)	561 (7.3)	10.1 (0.06)
Kuwait	54 (1.4)	414 (5.9)	31 (0.8)	390 (5.5)	15 (1.1)	382 (5.9)	10.2 (0.07)
Lithuania	39 (1.5)	531 (4.0)	42 (0.9)	510 (3.9)	19 (1.1)	497 (4.6)	9.7 (0.06)
Malaysia	53 (1.2)	418 (3.6)	40 (0.9)	404 (3.6)	7 (0.6)	400 (8.2)	10.4 (0.05)
Malta	47 (0.8)	512 (2.0)	32 (0.8)	504 (2.5)	21 (0.5)	489 (3.7)	9.8 (0.03)
Morocco	60 (1.0)	383 (3.1)	30 (0.7)	376 (3.8)	10 (0.6)	373 (4.9)	10.5 (0.04)
Norway (9)	32 (1.2)	516 (3.1)	45 (0.9)	508 (2.5)	23 (1.0)	485 (3.8)	9.4 (0.05)
Oman	53 (1.2)	432 (2.7)	34 (0.8)	403 (3.8)	13 (0.7)	389 (4.2)	10.2 (0.05)
Palestinian Nat'l Auth.	60 (1.0)	403 (3.2)	26 (0.8)	373 (3.6)	14 (0.6)	359 (4.3)	10.4 (0.04)
Portugal	40 (1.4)	487 (2.9)	40 (1.1)	473 (3.7)	21 (1.4)	462 (5.2)	9.6 (0.07)
Qatar	55 (1.7)	465 (4.8)	29 (0.9)	456 (4.5)	16 (1.3)	429 (7.1)	10.3 (0.09)
Romania	57 (1.7)	509 (4.8)	29 (1.1)	492 (6.1)	14 (1.2)	494 (7.8)	10.4 (0.07)
Saudi Arabia	68 (1.2)	411 (3.4)	24 (0.8)	389 (4.4)	8 (0.7)	381 (6.5)	10.9 (0.06)
Singapore	46 (1.5)	624 (5.8)	40 (0.9)	596 (6.6)	14 (1.2)	575 (10.0)	10.1 (0.07)
South Africa (9)	55 (1.5)	399 (3.5)	35 (1.0)	388 (3.4)	10 (0.9)	406 (6.7)	10.3 (0.06)
Sweden	34 (1.5)	537 (3.5)	43 (1.0)	519 (3.1)	23 (1.6)	511 (4.0)	9.5 (0.08)
Türkiye	61 (1.4)	520 (4.6)	29 (1.0)	493 (5.3)	11 (0.8)	491 (9.4)	10.5 (0.06)
United Arab Emirates	60 (0.7)	505 (2.2)	28 (0.5)	485 (2.2)	12 (0.4)	460 (2.8)	10.6 (0.03)
United States	48 (1.5)	504 (4.8)	36 (1.0)	482 (4.2)	16 (1.0)	480 (6.4)	10.0 (0.06)
Uzbekistan	80 (1.0)	430 (4.8)	17 (0.8)	404 (4.8)	4 (0.4)	383 (8.1)	11.4 (0.04)
<b>International Average</b>	<b>48 (0.2)</b>	<b>487 (0.6)</b>	<b>36 (0.2)</b>	<b>470 (0.6)</b>	<b>15 (0.2)</b>	<b>458 (0.9)</b>	
<b>Benchmarking Participants</b>							
Abu Dhabi, UAE	54 (1.1)	478 (3.1)	31 (0.6)	451 (3.0)	14 (0.7)	430 (3.8)	10.3 (0.05)
Dubai, UAE	59 (1.3)	562 (3.2)	29 (1.0)	538 (3.7)	12 (0.7)	510 (5.2)	10.5 (0.05)
Sharjah, UAE	67 (2.0)	504 (6.0)	24 (1.5)	491 (4.8)	9 (0.9)	467 (6.1)	10.9 (0.09)

This TIMSS context questionnaire scale was established in 2023 based on the combined response distribution of countries that participated in TIMSS 2023. To provide a point of reference for country comparisons, the scale centerpoint of 10 was located at the mean of the combined distribution. The units of the scale were chosen so that 2 scale score points corresponded to the standard deviation of the distribution.

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.